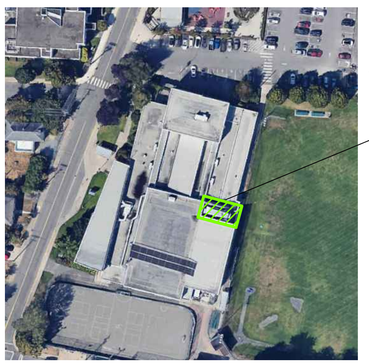
Esquimalt Recreation Centre
Dehumidifier Design

SHEET LIST

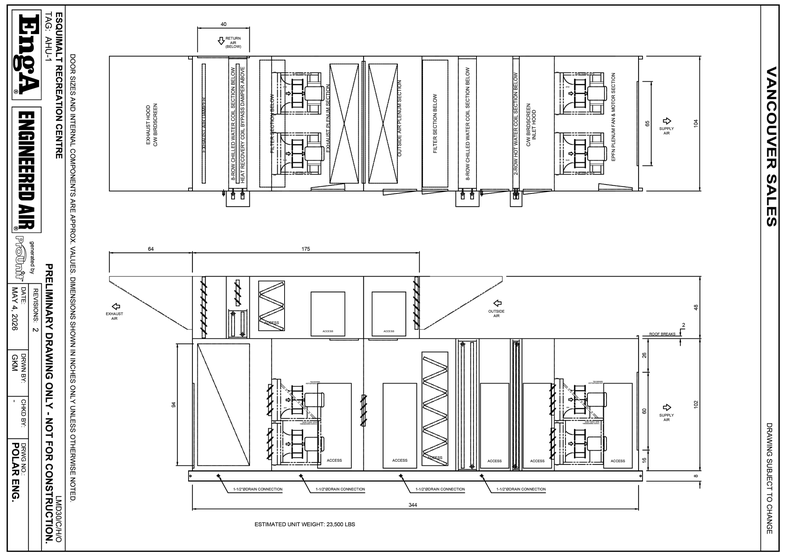


ESQUIMALT RECREATION CENTRE
527 Fraser St., Esquimalt, BC, V9A 6H6

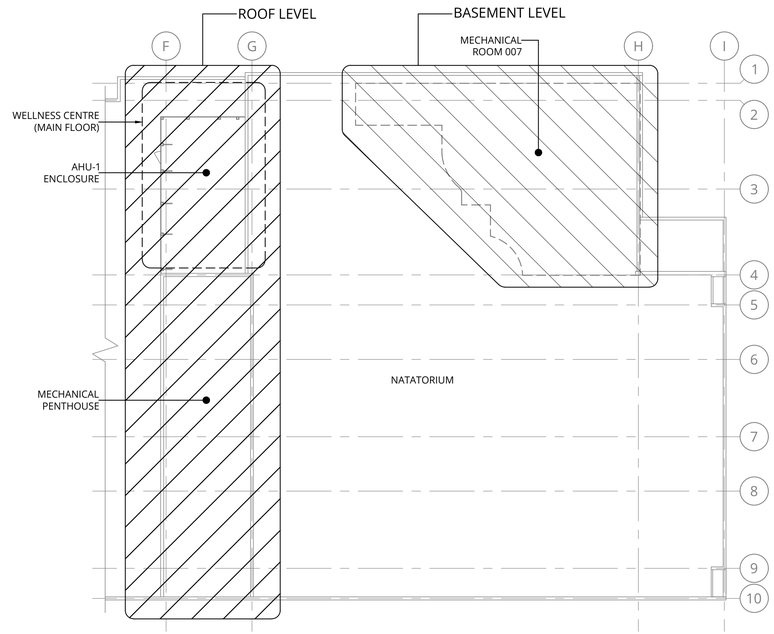
PRIME CONSULTANT POLAR ENGINEERING PHONE 778-700-1086 WEBSITE www.polareng.ca	CLIENT Township of ESQUIMALT PHONE 250-490-2426 WEBSITE www.penticton.ca	ENGINEER OF RECORD PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA S. L. TRANGELED # 50517 2026-06-22 STEFFEN TRANGELED, P.ENG. EGBC PERMIT TO PRACTICE NUMBER 1003657	PROJECT TITLE ESQUIMALT RECREATION CENTRE NATATORIUM DEHUMIDIFIER UPGRADE DRAWING TITLE COVER SHEET			

REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
1	2026-06-09	LI/MK	LI	ISSUED FOR COORDINATION
2	2026-06-12	LI	ST	ISSUED FOR 90% REVIEW
3	2026-06-19	AH	LI	ISSUED FOR TENDER
4	-	-	-	-
5	-	-	-	-
6	-	-	-	-

PROJ # 2611
SHEET SIZE D
SHEET NAME M0



1 / M1 AHU-1 DIMENSIONS
N.T.S.



2 / M1 NATATORIUM KEY PLAN
1:200

N

PROJECT DESCRIPTION:

THIS PROJECT DESCRIPTION IS FOR GENERAL UNDERSTANDING OF THE SCOPE. THIS DESCRIPTION DOES NOT DEFINE THE BOUNDS, LIMITS, OR EXCLUSIONS OF SCOPE, AND IS SUPERSEDED IN THE EVENT OF ANY CONFLICT OR CONTRADICTION WITH THE DRAWING DETAILS OR APPENDED SPECIFICATIONS.

1. AHU-1 CASH ALLOWANCE:
   - 1.1. INCLUDE IN THE TENDER PRICE A CASH ALLOWANCE OF $541,000.00 PLUS TAXES FOR NEW PRE-SELECTED NATATORIUM DEHUMIDIFIER AHU-1.
   - 1.2. CASH ALLOWANCE INCLUDES FREIGHT TO JOBSITE CURB.
   - 1.3. PRE-SELECTED DEHUMIDIFIER IS SCHEDULED FOR DELIVERY TO JOBSITE NO LATER THAN NOVEMBER 30TH, 2026.
2. ADDITIONAL UPGRADES (BY OWNER):
   - 2.1. ROOFING UPGRADES WILL BE PERFORMED BY THE OWNER IN CONJUNCTION WITH REMOVAL OF AHU-1.
   - 2.2. CONTRACTOR TO COORDINATE SCHEDULING OF AHU-1 DEMOLITION AND INSTALLATION CRANE LIFTS WITH THE OWNER.
   - 2.3. EXISTING AHU-1 ACOUSTIC SCREENS TO BE REMOVED AND REINSTALLED BY THE OWNER.
   - 2.4. ANNUAL POOL MAINTENANCE SHUTDOWN.
3. PROJECT SCHEDULE:
   - 3.1. REPLACEMENT OF DEHUMIDIFIER AHU-1 AND OWNER PERFORMED ROOFING UPGRADES TO BE COMPLETED DURING THE FACILITY'S SCHEDULED SHUTDOWN PERIOD FROM NOVEMBER 22 TO DECEMBER 13, 2026.
4. DEMOLITION (DRAWING M2):
   - 4.1. REMOVE AND DISPOSE OF EXISTING ROOF MOUNTED NATATORIUM DEHUMIDIFIER AHU-1, ASSOCIATED DUCTWORK AND PIPING AS DEPICTED ON THESE PLANS INCLUDING ALL REDUNDANT HANGERS, SUPPORTS AND CONTROLS.
   - 4.2. REMOVE EXISTING HRV AND TURN OVER TO THE OWNER.
   - 4.3. REMOVE PORTION OF EXISTING CHILLED WATER PIPING WITHIN ROOFTOP AHU COMPOUND.
   - 4.4. REMOVE PORTION OF EXISTING MID GRADE HEATING PIPING WITHIN ROOFTOP AHU COMPOUND AND MECHANICAL PENTHOUSE.
   - 4.5. REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL DEMOLITION SCOPE.
5. NEW WORK:
   - 5.1. INSTALL NEW DEHUMIDIFIER AHU-1 AND SEISMICALLY SECURE TO EXISTING CONCRETE PAD. CONNECT TO EXISTING DUCTWORK AND HYDRONIC PIPING.
   - 5.2. INSTALL NEW CHILLED WATER PIPING TO AHU-1.
   - 5.3. INSTALL NEW MID GRADE HEATING PIPING TO AHU-1 AND ASSOCIATED PUMP P-2B.
   - 5.4. INSTALL NEW VFD FOR EXISTING PUMP P-1 (BY CONTROLS CONTRACTOR).
   - 5.5. CLEAN AND FLUSH NEW CHILLED WATER AND MID GRADE HEATING PIPING. CHEMICALLY TREAT NEW MID GRADE HEATING PIPING.
   - 5.6. FILL AND BLEED CHILLED WATER PIPING (20% PROPYLENE GLYCOL) AND MID GRADE HEATING (WATER) PIPING SYSTEMS.
   - 5.7. INSTALL NEW DDC CONTROLS, UPDATE BAS GRAPHICS AND PROGRAMS.
   - 5.8. UPGRADES AS INDICATED ON ASSOCIATED STRUCTURAL AND ELECTRICAL DRAWINGS.
6. STARTUP AND COMMISSIONING:
   - 6.1. COORDINATE AHU-1 MANUFACTURER STARTUP. SUBMIT REPORT.
   - 6.2. SETUP AHU-1 OPERATING MODES AND SETPOINTS, REFER TO SEQUENCE OF OPERATIONS ON DRAWING M5. CONFIRM SUPPLY AND RETURN VFD SETPOINTS AS REQUIRED TO MAINTAIN NEGATIVE NATATORIUM PRESSURE RELATIVE TO OUTDOORS.
   - 6.3. REVISE EXISTING WATER-SOURCE HEAT PUMP HP-1 AND HP-2 CONTROLLER OPERATION FROM HEATING MODE TO COOLING MODE.
   - 6.4. REBALANCE CHILLED WATER AND MID GRADE HEATING WATER LOOPS. SUBMIT REPORT.
   - 6.5. COMMISSION ALL NEW, RELOCATED AND EXISTING DDC CONTROLS ASSOCIATED WITH THE UPGRADES. SUBMIT END-TO-END CHECK REPORT.

3 / M1 CRANE LAYDOWN AREA
N.T.S.

N

MECHANICAL SYMBOL LEGEND

HVAC
- SUPPLY OR OUTDOOR AIR (UP / DOWN)
- RETURN AIR
- EXHAUST AIR
- DUCTWORK (ACOUSTIC LINED)
- DUCTWORK (EXTERNALLY INSULATED)
- FLEXIBLE DUCT CONNECTOR
- SPIRAL DUCTWORK
- BALANCING DAMPER (BD)
- BACKDRAFT DAMPER (BDD)
- FIRE DAMPER (FD)
- MOTORIZED DAMPER (M)

PIPING SYMBOLS
- ELBOW UP
- ELBOW DOWN
- PIPE BREAK
- CONTROL VALVE
- ISOLATION VALVE
- BALANCING VALVE
- STRAINER
- CHECK VALVE
- PRESSURE REDUCING VALVE GAS PRESSURE REGULATOR
- T&P RELIEF VALVE
- UNION
- DRAIN
- PIPE CAP
- PUMP
- 2-WAY CONTROL VALVE WITH MOTORIZED ACTUATOR (DDC)
- 3-WAY CONTROL VALVE WITH MOTORIZED ACTUATOR (DDC)
- PRESSURE GAUGE
- THERMOMETER
- AIR VENT
- DRAIN VALVE W/ CAP
- DCVA: DOUBLE CHECK VALVE ASSEMBLY
- RPBA: REDUCE PRESSURE BACKFLOW ASSEMBLY

DRAWING NOTATIONS
- TAG: EQUIPMENT TAG
- #: KEY NOTE
- REVISION TAG
- DENOTES NEW WORK
- DENOTES EXISTING
- DENOTES DEMOLITION
- DETAIL CALL-OUT (A = DETAIL ID, B = DRAWING ID)
- SECTION CALL-OUT (A = DETAIL ID, B = DRAWING ID)
- AIR TERMINAL TAG (S-1 = AIR TERMINAL REFERENCE)
- GRILLE / NECK SIZE (INCHES) (12"x8")
- AIR FLOW (CFM) (200)

PIPING SYSTEMS
- CHWS — CHILLED WATER SUPPLY
- CHWR — CHILLED WATER RETURN
- CWS — CONDENSER WATER SUPPLY
- CWR — CONDENSER WATER RETURN
- CTWS — COOLING TOWER WATER SUPPLY
- CTWR — COOLING TOWER WATER RETURN
- DCW — DOMESTIC COLD WATER
- DHW — DOMESTIC HOT WATER
- DHR — DOMESTIC HOT WATER RECIRC.
- DHPS — DHW PRE-HEAT SUPPLY
- DHPR — DHW PRE-HEAT RETURN
- EGS — ETHYLENE GLYCOL SUPPLY
- EGR — ETHYLENE GLYCOL RETURN
- FCWS — FLUID COOLER WATER SUPPLY
- FCWR — FLUID COOLER WATER RETURN
- GLS — GLYCOL WATER SUPPLY
- GLR — GLYCOL WATER RETURN
- MGS — MID GRADE HEATING WATER SUPPLY
- MGR — MID GRADE HEATING WATER RETURN
- HWS — HEATING WATER SUPPLY
- HWR — HEATING WATER RETURN
- PWS — POOL WATER SUPPLY
- PWR — POOL WATER RETURN
- ELECTRIC HEAT TRACING

CONTROL SYMBOLS
- CO: CARBON MONOXIDE SENSOR
- CO2: CARBON DIOXIDE SENSOR
- T: THERMOSTAT
- T: TEMPERATURE SENSOR
- H: HUMIDISTAT
- H: HUMIDITY SENSOR
- FZ: FREEZE STAT
- FS: FLOW SWITCH
- F: FLOW SENSOR
- FM: FLOW METER
- PS: PRESSURE SWITCH
- DP: DIFFERENTIAL PRESSURE SENSOR
- P: STATIC PRESSURE SENSOR
- M: MOTORIZED ACTUATOR
- DDC POINT TAG

ABBREVIATIONS

AAV	AUTOMATIC AIR VENT
AHU	AIR HANDLING UNIT
BAS	BUILDING AUTOMATION SYSTEM
CTE	CONNECT TO EXISTING
C/W	COMPLETE WITH
DDC	DIRECT DIGITAL CONTROL
DN	DOWN
DPT	DEW-POINT TEMPERATURE
E/A	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
N.A.	NOT APPLICABLE
N.C.	NORMALLY CLOSED
N.I.C.	NOT IN CONTRACT
N.O.	NORMALLY OPEN
N.T.S.	NOT TO SCALE
NG	NATURAL GAS
O/A	OUTDOOR AIR
R/A	RETURN AIR
S/A	SUPPLY AIR
VFD	VARIABLE FREQUENCY DRIVE

PRIME CONSULTANT
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ENGINEER OF RECORD
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA S. L. TRANGELED # 50517
2026-06-22
STEFFEN TRANGELED, P.ENG.
EGBC PERMIT TO PRACTICE NUMBER 1003657

PROJECT TITLE
ESQUIMALT RECREATION CENTRE
NATATORIUM DEHUMIDIFIER UPGRADE

DRAWING TITLE
PROJECT GENERAL INFORMATION

REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
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5	-	-	-	-
6	-	-	-	-

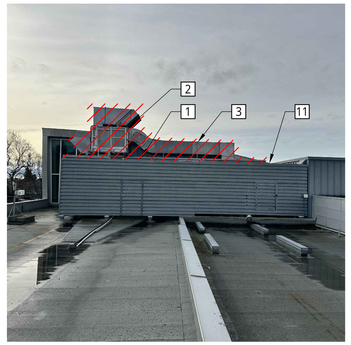
PROJ # 2611

SHEET SIZE D

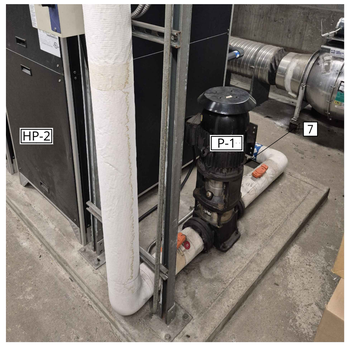
SHEET NAME M1

HEAT PUMPS HP-1 AND HP-2

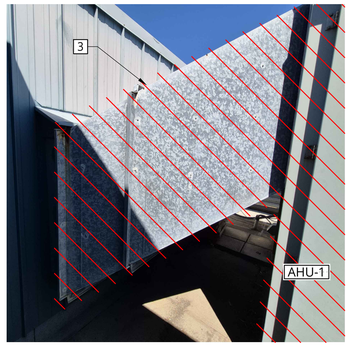
FILL STATIONS



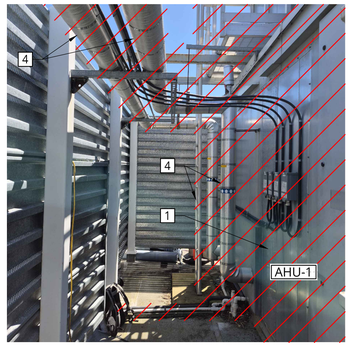
AHU-1 COMPOUND



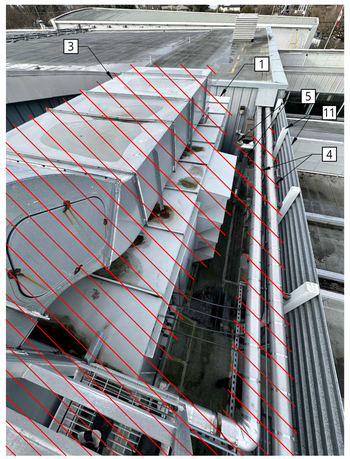
CHILLED WATER PUMP



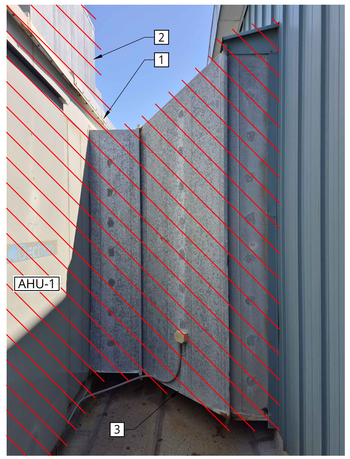
SUPPLY DUCT CONNECTION



CHILLED WATER COIL PIPING

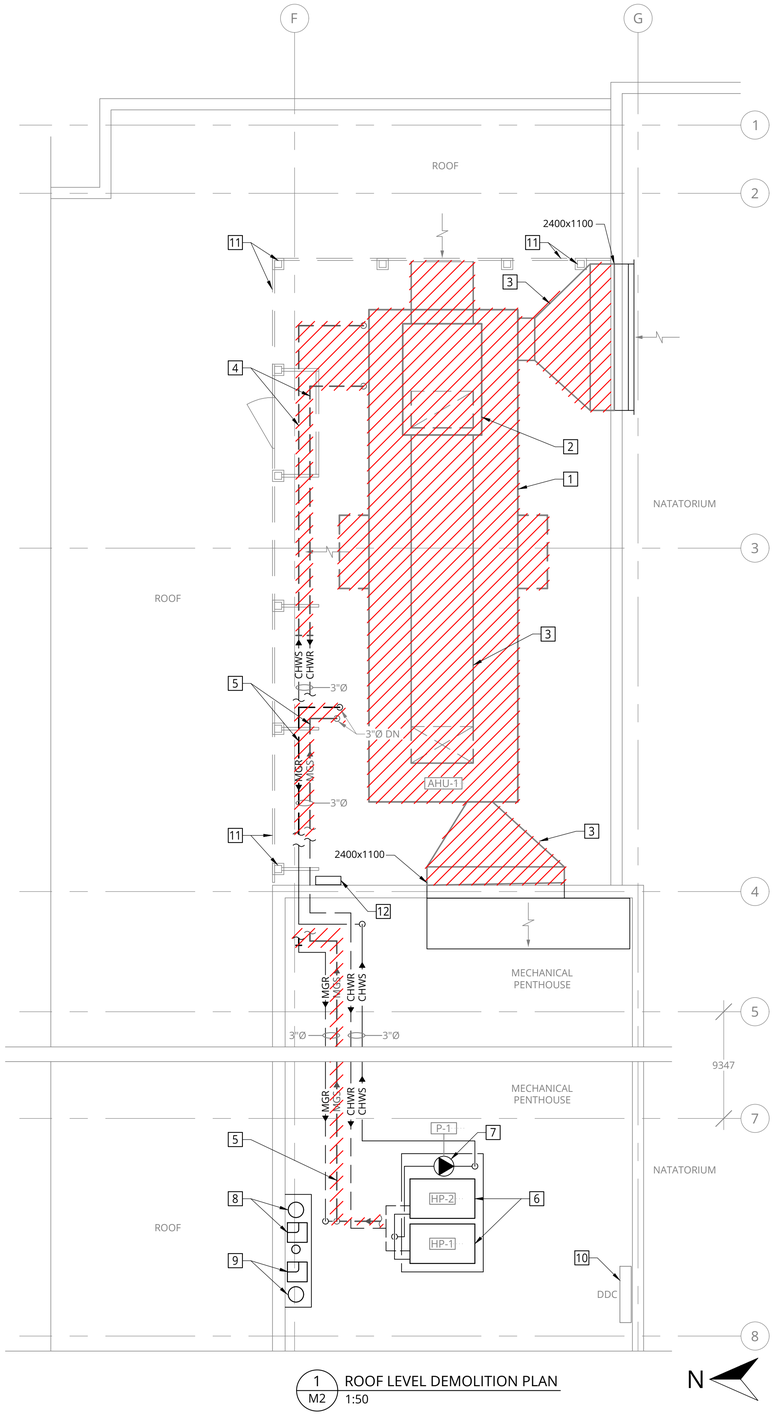


AHU-1 COMPOUND



RETURN DUCT CONNECTION

MID GRADE HEATING PIPING



1 M2 ROOF LEVEL DEMOLITION PLAN
1:50

N

KEY NOTES:

1. EXISTING NATATORIUM DEHUMIDIFIER AHU-1 TO BE REMOVED.
2. EXISTING MID GRADE HEATING VENTILATOR TO BE DISCONNECTED AND TURNED OVER TO THE OWNER.
3. EXISTING DUCTWORK TO BE REMOVED.
4. EXISTING PVC CHILLED WATER PIPING TO BE REMOVED.
5. EXISTING PVC MID GRADE HEATING PIPING TO BE REMOVED.
6. EXISTING WATER SOURCE HEAT PUMPS, TO REMAIN. REFER TO SEQUENCE OF OPERATIONS ON DRAWING M5 FOR REVISED OPERATION.
7. EXISTING CHILLED WATER LOOP PUMP P-1.
8. EXISTING CHILLED WATER LOOP GLYCOL AUTO-FILL, EXPANSION TANK, AND CHEMICAL POT FEEDER.
9. EXISTING MID GRADE HEATING LOOP AUTO-FILL (WATER) AND EXPANSION TANK.
10. EXISTING DDC PANEL.
11. EXISTING ACOUSTIC SCREEN TO BE REMOVED AND REINSTALLED BY THE OWNER. EXISTING POSTS TO REMAIN.
12. EXISTING AHU-1 ELECTRICAL DISCONNECT.

PRIME CONSULTANT

POLAR ENGINEERING

PHONE 778-700-1086 WEBSITE www.polareng.ca

CLIENT

Township of ESQUIMALT

PHONE 250-490-2426 WEBSITE www.penticton.ca

ENGINEER OF RECORD

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA S. L. TRANGELED # 50517 2026-06-22

STEFFEN TRANGELED, P.ENG.

EGBC PERMIT TO PRACTICE NUMBER 1003657

PROJECT TITLE
ESQUIMALT RECREATION CENTRE
NATATORIUM DEHUMIDIFIER UPGRADE

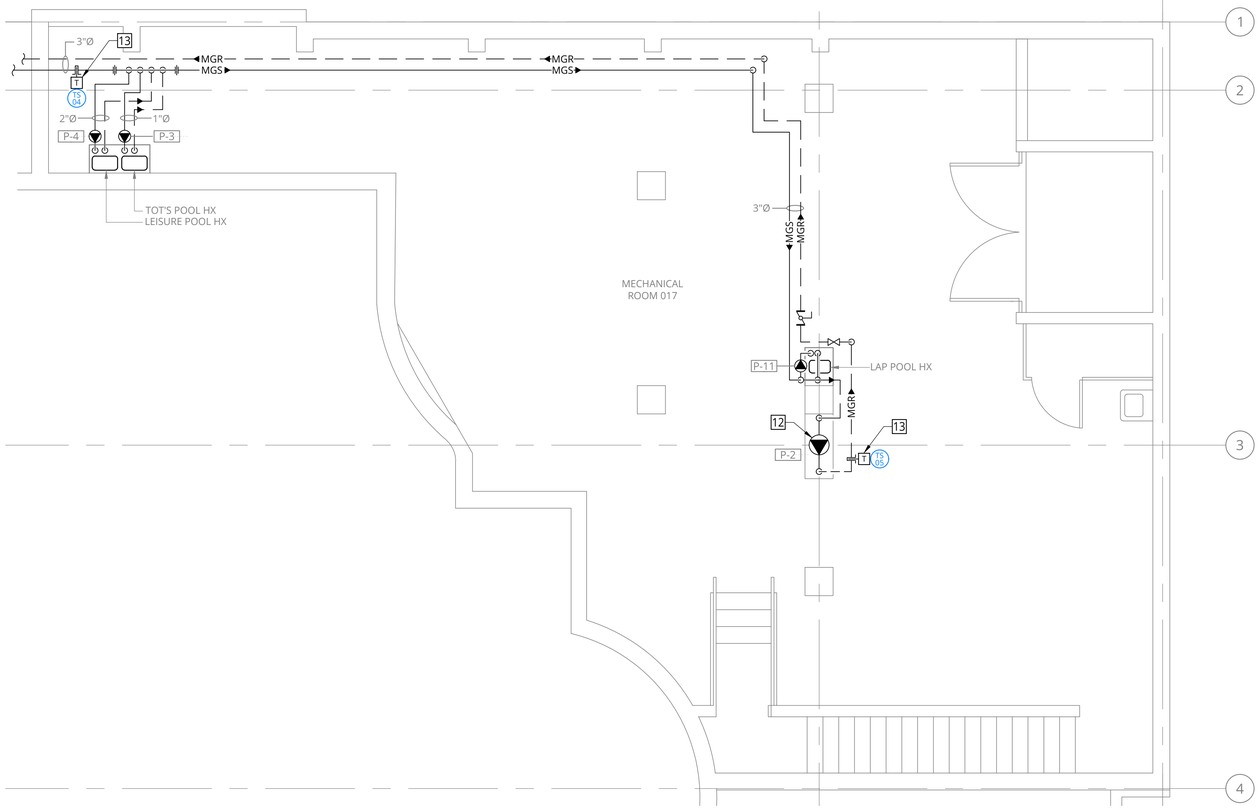
DRAWING TITLE
DEMOLITION PLAN AND PHOTOS

REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
1	2026-06-09	LI/MK	LI	ISSUED FOR COORDINATION
2	2026-06-12	LI	ST	ISSUED FOR 90% REVIEW
3	2026-06-19	AH	LI	ISSUED FOR TENDER
4	-	-	-	-
5	-	-	-	-
6	-	-	-	-

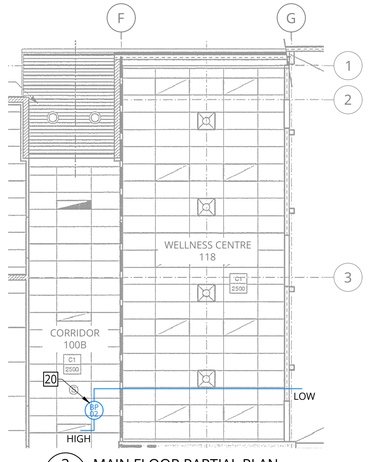
PROJ # 2611

SHEET SIZE D

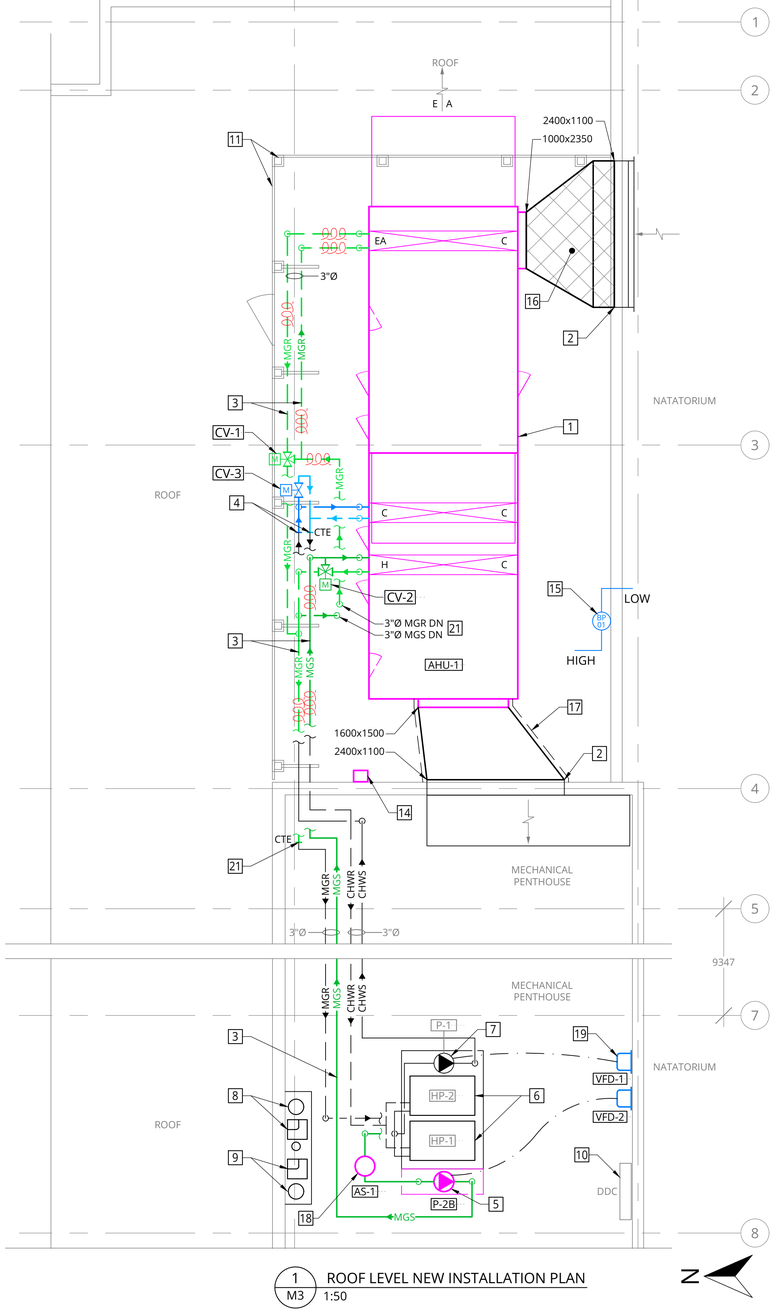
SHEET NAME M2



2 M3 PARTIAL BASEMENT LEVEL PLAN
1:50



3 M3 MAIN FLOOR PARTIAL PLAN
1:100



1 M3 ROOF LEVEL NEW INSTALLATION PLAN
1:50

GENERAL NOTES:

A. REFER TO SYSTEM SCHEMATICS ON DRAWING M4 FOR ADDITIONAL DETAIL
B. ALL EXTERIOR PIPING TO BE COMPLETE WITH INSULATION AND ALUMINUM JACKET.
C. SUPPORT ALL NEW EXTERIOR PIPING FROM EXISTING SUPPORTS.

KEY NOTES:

1. NEW NATATORIUM DEHUMIDIFIER AHU-1 SEISMICALLY SECURED TO EXISTING CONCRETE PAD. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL DETAIL.
2. RECONNECT TO EXISTING DUCTWORK.
3. NEW SCH 40 STEEL MID GRADE HEATING PIPING. MID GRADE HEATING PIPING LOCATED OUTDOORS TO BE COMPLETE WITH ELECTRIC HEAT TRACING.
4. EXTEND EXISTING PVC CHILLED WATER PIPING AND CONNECT TO NEW AHU-1 CHILLED WATER COIL CONNECTIONS.
5. NEW MID GRADE HEATING LOOP PUMP P-2B. EXTEND EXISTING HOUSEKEEPING PAD TO SUIT.
6. EXISTING WATER SOURCE HEAT PUMPS, TO REMAIN. REFER TO SEQUENCE OF OPERATIONS ON DRAWING M5 FOR REVISED OPERATION.
7. EXISTING CHILLED WATER LOOP PUMP P-1.
8. EXISTING CHILLED WATER LOOP GLYCOL AUTO-FILL, EXPANSION TANK, AND CHEMICAL POT FEEDER.
9. EXISTING MID GRADE HEATING LOOP AUTO-FILL (WATER) AND EXPANSION TANK.
10. EXISTING DDC PANEL.
11. EXISTING ACOUSTIC SCREEN TO BE REMOVED AND REINSTALLED BY THE OWNER. EXISTING POSTS TO REMAIN.
12. EXISTING MID GRADE HEATING LOOP PUMP P-2 TO REMAIN.
13. INSTALL NEW DDC TEMPERATURE SENSOR.
14. NEW HEAT TRACE CONTROLLER.
15. NEW BUILDING PRESSURE SENSOR BETWEEN THE NATATORIUM INTERIOR AND OUTSIDE AIR. DEVICE MAY BE INSTALLED INTERIOR OR EXTERIOR. DEVICE SELECTION TO BE OPTIMIZED FOR -20 TO +20 PA PRESSURE RANGE.
16. NEW RETURN AIR DUCTWORK TO BE COMPLETE WITH CLOSED-CELL ELASTOMERIC FOAM ACOUSTIC DUCT LINER.
17. NEW SUPPLY DUCTWORK TO BE COMPLETE WITH 50MM THERMAL INSULATION, VAPOUR RETARDED AR ALUMINUM AL-WEATHER JACKET.
18. NEW AIR AND DIRT SEPARATOR AS-1, CALEFFI MODEL NA546080A, ASME RATED, 3"Ø FLANGED INLET AND OUTLET, COMPLETE WITH FACTORY OPTION INSULATION SHELLS.
19. NEW WALL MOUNTED VFD FOR PUMP P-1 BY CONTROLS CONTRACTOR. REFER TO SPECIFICATION PART 10. COORDINATE EXACT LOCATION ON SITE.
20. NEW BUILDING PRESSURE SENSOR ABOVE EXISTING T-BAR CEILING.
21. TRANSITION FROM NEW SCH 40 STEEL TO EXISTING SCH 80 PVC.

PRIME CONSULTANT	CLIENT	ENGINEER OF RECORD	PROJECT TITLE
POLAR ENGINEERING	Township of ESQUIMALT	STEFFEN TRANGELED, P.ENG.	ESQUIMALT RECREATION CENTRE NATATORIUM DEHUMIDIFIER UPGRADE
PHONE 778-700-1086 WEBSITE www.polareng.ca	PHONE 250-490-2426 WEBSITE www.penticton.ca	EGBC PERMIT TO PRACTICE NUMBER 1003657	DRAWING TITLE NEW WORK PLANS

REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
1	2026-06-09	LI/MK	LI	ISSUED FOR COORDINATION
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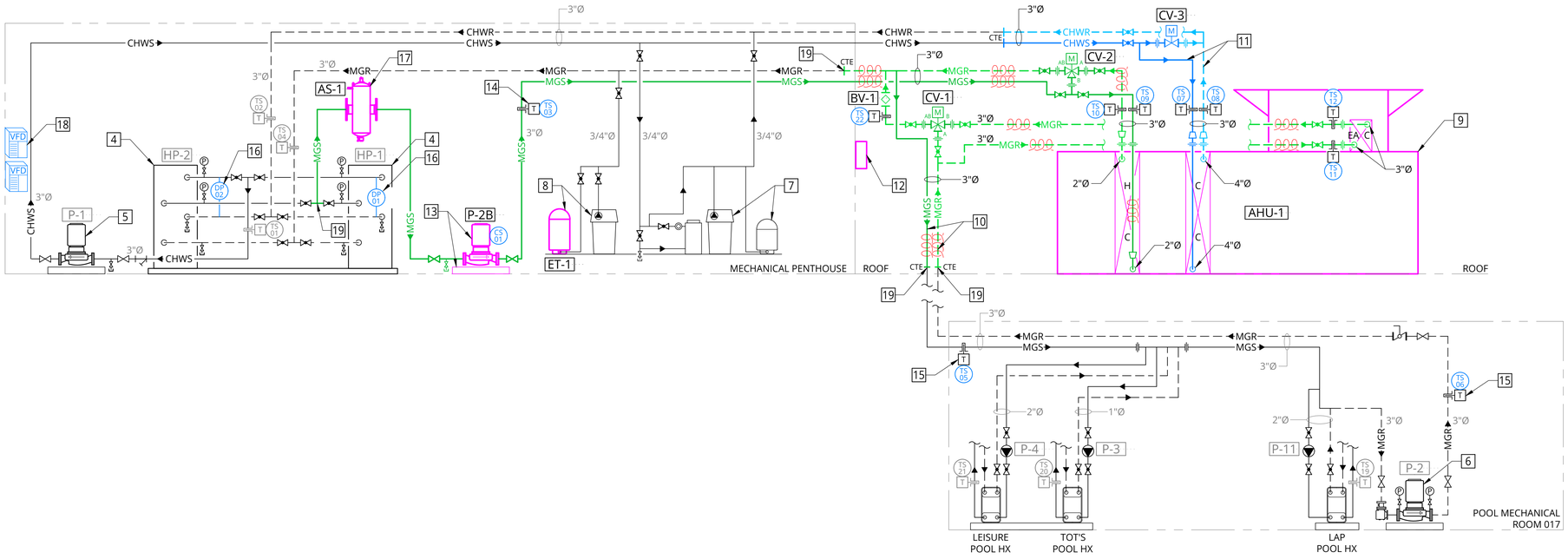
5	-	-	-	-
6	-	-	-	-

PROJ # 2611
SHEET SIZE D
SHEET NAME M3

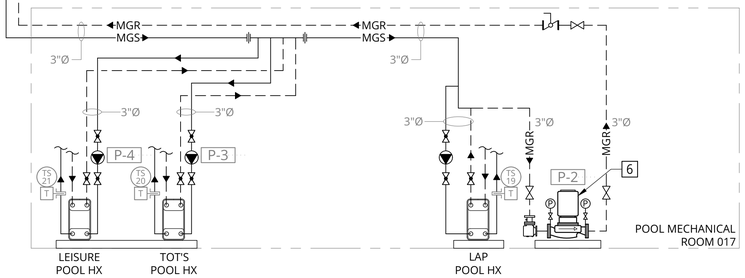


KEY NOTES:

1. EXISTING NATATORIUM DEHUMIDIFIER AHU-1 AND ASSOCIATED MID GRADE HEATING VENTILATOR TO BE REMOVED.
2. EXISTING PVC PIPING TO BE REMOVED.
3. EXISTING DDC TEMPERATURE SENSOR TO BE REMOVED AND RELOCATED. REFER TO NEW WORK SCHEMATIC.
4. EXISTING WATER SOURCE HEAT PUMP TO REMAIN. REFER TO SEQUENCE OF OPERATIONS ON DRAWING M5 FOR REVISED OPERATION.
5. EXISTING CHILLED WATER LOOP PUMP P-1, TO REMAIN.
6. EXISTING MID GRADE LOOP PUMP P-2, TO REMAIN.
7. EXISTING CHILLED WATER LOOP GLYCOL AUTO-FILL, EXPANSION TANK AND CHEMICAL POT FEEDER.
8. EXISTING MID GRADE HEATING LOOP AUTO-FILL (WATER) AND EXPANSION TANK. REMOVE EXISTING EXPANSION TANK AND REPLACE WITH NEW ET-1. TURN OVER EXISTING TANK TO THE OWNER.
9. NEW NATATORIUM DEHUMIDIFIER AHU-1.
10. NEW SCH 40 STEEL MID GRADE HEATING PIPING.
11. NEW SCH 80 PVC CHILLED WATER PIPING.
12. NEW ELECTRIC HEAT TRACE CONTROLLER.
13. NEW MID GRADE LOOP PUMP P-2B ON NEW CONCRETE HOUSEKEEPING PAD.
14. REINSTALL EXISTING DDC TEMPERATURE SENSOR IN NEW LOCATION.
15. NEW DDC TEMPERATURE SENSOR.
16. INSTALL NEW DDC DIFFERENTIAL PRESSURE SENSOR FOR PUMP P-2B SPEED CONTROL.
17. NEW AIR AND DIRT SEPARATOR AS-1, INCLUDE AUTOMATIC AIR VENT AND ISOLATION VALVE ON TOP. CONTRACTOR TO DETERMINE BEST PHYSICAL LOCATION WITH STRAIGHT PIPE REQUIREMENTS AS PER MANUFACTURERS INSTALLATION GUIDE.
18. NEW WALL MOUNTED VFD FOR PUMP P-1 BY CONTROLS CONTRACTOR.
19. TRANSITION FROM NEW SCH 40 STEEL TO EXISTING SCH 80 PVC.

DP 03 DP NATATORIUM DIFFERENTIAL PRESSURE
TS 13 T OUTDOOR AIR TEMPERATURE
TS 14 T NATATORIUM AIR TEMPERATURE
RH 01 H OUTDOOR AIR RH
RH 02 H NATATORIUM AIR RH

2 / M4 HYDRONIC SCHEMATIC - NEW WORK
N.T.S.



1 / M4 HYDRONIC SCHEMATIC - DEMOLITION
N.T.S.

3 / M4 NEW DEHUMIDIFIER AHU-1 SCHEMATIC
N.T.S.

PRIME CONSULTANT	CLIENT	ENGINEER OF RECORD	PROJECT TITLE
POLAR ENGINEERING	Township of ESQUIMALT	STEFFEN TRANGELED, P.ENG. 2026-06-22	ESQUIMALT RECREATION CENTRE NATATORIUM DEHUMIDIFIER UPGRADE
PHONE 778-700-1086 WEBSITE www.polareng.ca	PHONE 250-490-2426 WEBSITE www.penticton.ca	EGBC PERMIT TO PRACTICE NUMBER 1003657	DRAWING TITLE SYSTEM SCHEMATICS

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4	-	-	-	-
5	-	-	-	-
6	-	-	-	-

PROJ # 2611
SHEET SIZE D
SHEET NAME M4

PUMP SCHEDULE		
TAG		**P-2B**
LOCATION		MECHANICAL PENTHOUSE
SERVICE		MID GRADE HEATING WATER LOOP
	OPERATING TEMP (°C)	43.3
	FLUID	WATER
	PUMP FLOW (L/s)	5.68
	HEAD (M H2O)	11.13
ELECTRICAL	**POWER (kW)**	2.24
	MOTOR TYPE	INVERTER RATED
	MOTOR RPM	1,800
	VOLT/PHASE/HZ	208/3/60
BASIS OF DESIGN	**MAKE**	B&G
	MODEL	e-80 3x3x13.5
	NOTES	

NOTES:

BALANCING VALVE SCHEDULE		
TAG		**BV1**
LOCATION		AHU-1 COMPOUND (ROOF)
SERVICE		MID GRADE HEATING WATER LOOP RETURN
FLUID		WATER
FLOW RATE	**[L/s]**	5.68
SIZE	**[IN]**	3
BASIS OF DESIGN	**MAKE**	VICTAULIC TA
	MODEL	789 SERIES
	NOTES	

NOTES:

EXPANSION TANK SCHEDULE		
TAG		**ET-1**
LOCATION		MECHANICAL PENTHOUSE
SERVICE		MID GRADE HEATING WATER LOOP
TANK VOLUME [L]		88
MINIMUM ACCEPTANCE VOLUME [L]		43
	FLUID	WATER
BASIS OF DESIGN	**MAKE**	AMTROL
	MODEL	AX-40V-DD
	DESCRIPTION	DIAPHRAGM
	NOTES	1

NOTES:
1. 861 kPa MAXIMUM WORKING PRESSURE, ASME RATED.

CONTROL VALVE SCHEDULE				
TAG		**CV-1**	**CV-2**	**CV-3**
LOCATION		ROOF	ROOF	ROOF
SERVICE		MID GRADE HEATING WATER BYPASS	AHU-1 HEATING COIL	AHU-1 COOLING COIL
TYPE		3-WAY (MIXING)	3-WAY (MIXING)	2-WAY (MODULATING)
LINE SIZE [IN]		3	3	3
BODY SIZE [IN]		2	2	2
CV		52.9	48.6	76.6
FLUID		WATER	WATER	20% PG
FLOW [L/s]		5.68	5.68	5.55
FAIL POSITION		NORMALLY OPEN FAIL OPEN	NORMALLY CLOSED FAIL OPEN	NORMALLY OPEN FAIL CLOSED
BASIS OF DESIGN	**MAKE**	BELIMO	BELIMO	BELIMO
	MODEL	B350+AFRX24-MFT N4	B349+AFRX24-MFT N4	B252+AFRX24-MFT N4
	NOTES	1	1	1

NOTES:
1. ACTUATORS LOCATED OUTDOORS TO BE COMPLETE WITH NEMA 4X RATED ENCLOSURE.

DEHUMIDIFIER SCHEDULE		
TAG		**AHU-1**
LOCATION		ROOFTOP / OUTDOOR
SERVICE		NATATORIUM
SUPPLY FAN	**AIR FLOW (L/s)**	15,104
	FAN ESP (Pa)	311
	DRIVE	UNIT MOUNTED VFD
RETURN FAN	**AIR FLOW (L/s)**	16,992
	FAN ESP (Pa)	125
	DRIVE	UNIT MOUNTED VFD
OUTSIDE AIR	**OPERATING AIR FLOW (L/s)**	2,800 - 4,000
	100% AIR FLOW (L/s)	15,104
MOISTURE REMOVAL	**(KG/HR)**	200.1
COOLING COIL	**TOTAL CAPACITY (kW)**	436.2
	SENSIBLE CAPACITY (kW)	289.2
	EAT DB/WB (°C)	28.9 / 21
	LAT DB/WB (°C)	13.0 / 13.0
	AIR PRESSURE DROP (Pa)	365.3
	EWT (°C)	7.2
	LWT (°C)	15.4
	FLUID	20% PG
	FLOW RATE (L/s)	13.24
	FLUID PRESSURE DROP (kPa)	43.41
POST-HEAT COIL	**CAPACITY (kW)**	105.2
	EAT DB (°C)	12.8
	LAT DB (°C)	18.6
	AIR PRESSURE DROP (Pa)	22.8
	EWT (°C)	48.9
	LWT (°C)	37.3
	FLUID	WATER
	FLOW RATE (L/s)	2.19
	FLUID PRESSURE DROP (kPa)	4.21
EXHAUST AIR HEAT REJECTION COIL	**TOTAL CAPACITY (kW)**	88.7
	AIR FLOW (L/s)	5,522
	EAT DB (°C)	28.9
	LAT DB (°C)	42.2
	AIR PRESSURE DROP (Pa)	214.4
	EWT (°C)	43.3
	LWT (°C)	39.9
	FLUID	WATER
	FLOW RATE (L/s)	6.31
	FLUID PRESSURE DROP (kPa)	33.59
FILTERS	**EXHAUST AIR**	MERV 8
	SUPPLY AIR (FINAL)	MERV 13
ELECTRICAL	**POWER (V/PH/HZ)**	575/3/60
	MCA (A)	85.4
	MOP (A)	90.0
DIMENSIONS	**MAX. BASE RAIL LENGTH (M)**	8.74
	MAX. BASE RAIL WIDTH (M)	2.64
	MAX. OPERATING WEIGHT (KG)	10,660

NOTES:
1. NATATORIUM RATED, CORROSION RESISTANT CONSTRUCTION, INSULATED PANELS.
2. 5052 ALUMINUM ALLOY INTERIOR CONSTRUCTION.
3. CONTROLS TO BE FIELD SUPPLIED. PROVIDE FACTORY INSTALLED EMPTY 25MM CONDUIT WITH J-BOXES IN EACH SECTION FOR CONTROL CONTRACTOR'S USE.
4. UNIT CAPABLE OF 100% OUTSIDE AIR / EXHAUST AIR OPERATION (PURGE MODE).
5. UNIT CAPABLE OF OPERATING IN 100% RECIRCULATION MODE.
6. UNIT TO BE INSTALLED ON EXISTING CONCRETE PAD.
7. SINGLE-POINT POWER CONNECTION C/W 120V TRANSFORMER FOR INTERIOR LIGHTING CIRCUIT.
8. COIL DRAIN PANS TO BE TYPE 316 STAINLESS STEEL OR NON-METALLIC.
9. FILTER BANKS TO BE COMPLETE WITH PHOTOHELIC GAUGES.
10. MARINE LIGHTS IN ALL ACCESSIBLE SECTIONS.
11. GASKETED HINGED ACCESS DOORS WITH LEVER LOCK HANDLES.
12. OA DESIGN CONDITIONS: SUMMER 26°C DB / 18.6°C WB. WINTER -4.4°C DB.
13. COMPLETE WITH ALL DAMPERS AND ACTUATORS (NEMA 4X ENCLOSURE).

CONTROL POINT SCHEDULE

TAG	DESCRIPTION	HARDWARE POINTS				SOFTWARE POINTS				DISPLAY ON BMS GRAPHIC	NOTES
		AI	AO	BI	BO	AV	BV	ALARM	TREND		
AF01	OUTSIDE AIR FLOW SENSOR	X							X	X	
AHU-1	AHU-1 SUPPLY FAN ARRAY START/STOP/SPEED		X					X		X	VFD SUPPLIED WITH AHU-1.
AHU-1	AHU-1 RETURN FAN ARRAY START/STOP/SPEED		X					X		X	VFD SUPPLIED WITH AHU-1.
BP01	NATATORIUM RELATIVE PRESSURE SENSOR (OUTDOOR)	X						X	X	X	
BP02	NATATORIUM RELATIVE PRESSURE SENSOR (INDOOR)	X							X	X	
CS01	PUMP P2-B CURRENT SENSOR	X						X		X	
CS02	AHU-1 SF 1 CURRENT SENSOR	X						X		X	
CS03	AHU-1 SF 2 CURRENT SENSOR	X						X		X	
CS04	AHU-1 SF 3 CURRENT SENSOR	X						X		X	
CS05	AHU-1 SF 4 CURRENT SENSOR	X						X		X	
CS06	AHU-1 RF 1 CURRENT SENSOR	X						X		X	
CS07	AHU-1 RF 2 CURRENT SENSOR	X						X		X	
CS08	AHU-1 RF 3 CURRENT SENSOR	X						X		X	
CS09	AHU-1 RF 4 CURRENT SENSOR	X						X		X	
CV01	AHU-1 EA COIL BYPASS CONTROL VALVE		X						X	X	
CV01	AHU-1 EA COIL BYPASS CONTROL VALVE POSITION	X						X	X	X	
CV02	AHU-1 HW COIL CONTROL VALVE		X						X	X	
CV02	AHU-1 HW COIL CONTROL VALVE POSITION	X						X	X	X	
CV03	AHU-1 CHW COIL CONTROL VALVE		X						X	X	
CV03	AHU-1 CHW COIL CONTROL VALVE POSITION	X						X	X	X	
DA01	AHU-1 OUTDOOR AIR DAMPER ACTUATOR		X							X	UNIT SUPPLIED COMPLETE WITH DAMPER. ACTUATOR BY CONTROLS CONTRACTOR
DA01	AHU-1 OUTDOOR AIR DAMPER ACTUATOR POSITION	X						X			
DA02	AHU-1 EXHAUST AIR DAMPER ACTUATOR		X							X	UNIT SUPPLIED COMPLETE WITH DAMPER. ACTUATOR BY CONTROLS CONTRACTOR
DA02	AHU-1 EXHAUST AIR DAMPER ACTUATOR POSITION	X						X			
DA03	AHU-1 MIXED AIR DAMPER ACTUATOR		X							X	UNIT SUPPLIED COMPLETE WITH DAMPER. ACTUATOR BY CONTROLS CONTRACTOR
DA03	AHU-1 MIXED AIR DAMPER ACTUATOR POSITION	X						X			
DA04	AHU-1 EXHAUST AIR COIL BYPASS DAMPER ACTUATOR		X							X	UNIT SUPPLIED COMPLETE WITH DAMPER. ACTUATOR BY CONTROLS CONTRACTOR
DA04	AHU-1 EXHAUST AIR COIL BYPASS DAMPER ACTUATOR POSITION	X						X			
DP01	CHILLED WATER LOOP DIFFERENTIAL PRESSURE	X							X	X	
DP02	MID GRADE HEATING WATER LOOP DIFFERENTIAL PRESSURE	X							X	X	
DP03	AHU-1 FINAL FILTER DIFFERENTIAL PRESSURE SENSOR	X						X		X	SUPPLIED WITH AHU-1
DP04	AHU-1 EXHAUST COIL FILTER DIFFERENTIAL PRESSURE SENSOR	X						X		X	SUPPLIED WITH AHU-1
GS01	AHU-1 RETURN AIR CO2 SENSOR	X							X		
HT-1	HEAT TRACE CONTROLLER ENABLE				X					X	
HT-1	HEAT TRACE CONTROLLER GENERAL ALARM CONTACT			X				X		X	
P-1	CHILLED WATER LOOP PUMP START/STOP/SPEED				X						CONTRACTOR TO PROVIDE NEW VFD FOR EXISTING PUMP.
P-2	MID GRADE HEATING WATER LOOP PUMP				X						EXISTING
P-2B	PUMP P2-B START/STOP/SPEED		X					X	X	X	FACTORY SUPPLIED UNIT MOUNTED VFD
P-2B	PUMP P2-B SPEED FEEDBACK	X								X	FACTORY SUPPLIED UNIT MOUNTED VFD
P-3	TOT'S POOL MID GRADE HEATING PUMP START/STOP				X						EXISTING
P-4	LEISURE POOL MID GRADE HEATING PUMP START/STOP				X						EXISTING
P-11	LAP POOL MID GRADE HEATING PUMP START/STOP				X						EXISTING
RH01	OUTDOOR AIR RELATIVE HUMIDITY SENSOR	X								X	EXISTING
RH02	NATATORIUM RELATIVE HUMIDITY SENSOR	X								X	EXISTING
RH03	AHU-1 RETURN AIR HUMIDITY SENSOR	X							X	X	
TS01	CHILLED WATER LOOP SUPPLY TEMPERATURE	X							X	X	EXISTING
TS02	CHILLED WATER LOOP RETURN TEMPERATURE	X							X	X	EXISTING
TS03	MID GRADE HEATING LOOP SUPPLY TEMPERATURE	X							X	X	EXISTING, RELOCATED
TS04	MID GRADE HEATING LOOP RETURN TEMPERATURE	X							X	X	EXISTING
TS05	MID GRADE HEATING LOOP SUPPLY TEMPERATURE (ROOM 017)	X							X	X	
TS06	MID GRADE HEATING LOOP RETURN TEMPERATURE (ROOM 017)	X							X	X	
TS07	AHU-1 CHW COIL SUPPLY TEMPERATURE	X							X	X	
TS08	AHU-1 CHW COIL RETURN TEMPERATURE	X							X	X	
TS09	AHU-1 HW COIL SUPPLY TEMPERATURE	X							X	X	
TS10	AHU-1 HW COIL RETURN TEMPERATURE	X							X	X	
TS11	AHU-1 EA COIL SUPPLY TEMPERATURE	X							X	X	
TS12	AHU-1 EA COIL RETURN TEMPERATURE	X							X	X	
TS13	OUTDOOR AIR TEMPERATURE SENSOR	X							X	X	EXISTING
TS14	NATATORIUM AIR TEMPERATURE SENSOR	X							X	X	EXISTING
TS15	AHU-1 MIXED AIR TEMPERATURE SENSOR	X							X	X	
TS16	AHU-1 CHW OFF COIL AIR TEMPERATURE SENSOR	X							X	X	
TS17	AHU-1 SUPPLY AIR TEMPERATURE SENSOR	X							X	X	
TS18	AHU-1 RETURN AIR TEMPERATURE SENSOR	X							X	X	
TS19	LAP POOL WATER SUPPLY TEMPERATURE	X								X	EXISTING
TS20	TOT'S POOL WATER SUPPLY TEMPERATURE	X								X	EXISTING
TS21	LEISURE POOL WATER SUPPLY TEMPERATURE	X								X	EXISTING
TS22	CV-2 OUTLET TEMPERATURE	X								X	

DDC POINT TYPE: AI = ANALOG INPUT, BI = BINARY INPUT, AO = ANALOG OUTPUT, BO = BINARY OUTPUT, AV = ANALOG VALUE, BV = BINARY VALUE

GENERAL NOTES:
1. PRIOR TO START OF DEMOLITION PHASE, THE CONTROLS CONTRACTOR SHALL RECOMMISSION ALL EXISTING TO REMAIN AND EXISTING TO BE RELOCATED SENSORS TO VERIFY THEIR PROPER OPERATION AND CALIBRATION.
2. THE CONTROLS CONTRACTOR SHALL VERIFY PROPER OPERATION OF RELOCATED SENSORS DURING FINAL COMMISSIONING.

GENERAL NOTE - CONTROLS:
DETAILED SEQUENCE OF OPERATION AND PROGRAMMING NOTES FOR THE OUTPUT POINTS DESCRIBED HEREIN WILL BE PROVIDED ON THE IFC DRAWING SET. CONTRACTOR TO INCLUDE ALL COSTS ASSOCIATED WITH TYPICAL PROGRAMMING COMPLEXITY FOR A NATATORIUM DEHUMIDIFIER AND HEAT PUMP SYSTEM. NEW DDC GRAPHICS ARE REQUIRED FOR THE AHU-1 AND HEAT PUMP SYSTEM, SEPARATELY, WITH FURTHER INSTRUCTION TO BE PROVIDED BY THE CONSULTANT

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CLIENT
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ENGINEER OF RECORD
PROFESSIONAL ENGINEER S. L. TRANGELED # 50517 PROVINCE OF BRITISH COLUMBIA
2026-06-22
STEFFEN TRANGELED, P.ENG.
EGBC PERMIT TO PRACTICE NUMBER 1003657

PROJECT TITLE
ESQUIMALT RECREATION CENTRE
NATATORIUM DEHUMIDIFIER UPGRADE

DRAWING TITLE
EQUIPMENT SCHEDULES

REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
1	2026-06-09	LI/MK	LI	ISSUED FOR COORDINATION
2	2026-06-12	LI	ST	ISSUED FOR 90% REVIEW
3	2026-06-19	AH	LI	ISSUED FOR TENDER
4	-	-	-	-
5	-	-	-	-
6	-	-	-	-

PROJ # 2611

SHEET SIZE D

SHEET NAME M5